DEC STD 093-0 Capturing, Storing, and Distributing Engineering Documentation with Electronic and Graphic COM Systems

DOCUMENT IDENTIFIER: A-DS-EL00093-00-0000 Rev A, 10-Jul-1990

ABSTRACT: This standard defines the process for capturing, storing, and distributing Computer Aided Design (CAD) generated documentation through electronic and Graphic Computer Output Microfilm (COM) Systems. It also describes requirements for routing electronic files to the electronic and Graphic COM systems.

APPLICABILITY: This standard is mandatory for all Digital employees who are suppliers of design documentation to the Information/Image Services electronic and Graphic COM systems.

STATUS: APPROVED 10-Jul-1990; use VTX SMC for current status.

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Responsible Person:	Edwin Waters

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Edwin Waters - Image/Information Services

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Use $ VTX ELF for the latest location information.

Use VTX SMC to order copies of this document from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

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1 INTRODUCTION

This standard establishes electronic processing as the corporate-wide method for capturing, storing, and distributing both initial releases and revised drawing releases of engineering documentation. This on-line method processes and distributes complex design drawings that have been generated by a wide range of Computer Aided Design (CAD) tools. It allows users at local sites to view and print hard copies of engineering documentation stored at their site or to retrieve documentation from the Image/Information Services (IIS) data base.

This standard also establishes requirements and procedures for the Graphic Computer Output Microfilm (COM) process. Graphic COM is a computer controlled device for filming documents that are electronically transferred. The Graphic COM process involves microfilming engineering documentation and distributing it on 35 mm aperture cards.

1.1 SCOPE

This standard defines the process for electronically capturing, storing, and distributing engineering documentation.

This standard also defines the requirements and procedures for translating electronic files and paper documents to 35 mm microfilm images. The requirements for identification and release of magnetic media are defined in *DEC STD 185-0 Documentation of Computer Media in the Engineering Documentation System*.

When approved, this standard will inactivate *DEC STD 029-0 Graphic COM System: Requirements and Procedures*.

1.2 RESPONSIBILITIES

The following paragraphs detail the responsibilities of the groups using and maintaining the electronic and Graphic COM Systems.

1.2.1 Engineers

Engineers are responsible for the content of the CAD-developed image files transmitted to the electronic and Graphic COM systems and for attaining the approval sign-off of the drawings.

1.2.2 Engineering Services/Documentation Groups

Engineering Services sites prepare design data bases and transmit design drawings and release these to Image/Information Services (IIS).

1.2.3 Image/Information Services (IIS)

IIS provides quality checking of CAD-generated files transferred from design sites to IIS.

IIS translates image files to 35 mm Graphic COM microfilm images.

IIS maintains the corporate-wide data base containing on-line engineering drawings.

IIS distributes duplicate aperture cards to engineering and manufacturing information groups.

IIS ensures distribution is in accordance with the distribution type defined in subhead 3.3, specifies procedures for electronic and Graphic COM systems, and is responsible for the content of this standard. Contact Edwin Waters, HUO, DTN: 225-4304, STUDIO::WATERS.

2 ERICA FUNCTIONAL OVERVIEW

This heading presents general functional information about the electronic system currently used by IIS, Electronic Retrieval of Image and Computer Aided Design Architecture (ERICA). For more detailed information, refer to *ERICA Read Me First* and *ERICA Student Guide*, both available from the ERICA Support Group, HUO, STUDIO::HOTLINE.

2.1 ERICA CLIENT SOFTWARE

The ERICA client software consists of three modules:

- Registration Module
- View and Print Module
- Retrieval Module

The Registration Module allows librarians to manage user access and maintain user information.

The View and Print Module gives users the capability to view and print documents residing in their local data base.

The Retrieval Module allows users to retrieve documents from the IIS data base for storage in their own local data base.

2.2 ERICA INTERFACES

Entry of initial and revised drawing releases into the IIS corporate-wide data base began in December 1987. ERICA client sites retrieve document images from the IIS data base and store them at their site. The retrieval function can be accomplished from a character-cell terminal.

Once the images reside at the ERICA client site, ERICA allows users to print and display the images. The printing function can be invoked from a character-cell terminal. Images are printed on a local PostScript* printer or on an electrostatic plotter. The display function is accomplished via a VAXstation workstation (24 MB memory preferred, 16 MB memory minimum).

The ERICA Retrieval Module interfaces with the Documents on Computer Systems (DOCS) data base to locate the IIS document image files. The module then retrieves and stores the images at the local data base. For additional information on DOCS, contact the PIPES organization secretary at CTC2-1/C14, DTN 287-3089 or the CTC support hotline at DTN 287-3045, ALLVAX::HOTLINE.

The ability to access VMS file management utilities allows librarians to manage local ERICA files and directories.

* PostScript is a registered trademark of Adobe Systems, Inc.

The electronic feed to Graphic COM is also accepted by ERICA, and both systems are based on the concept that the CAD data base is the master. The difference is the output: Graphic COM produces microfilm of the engineering documentation; ERICA produces an on-line image for viewing or printing.

3 PROCESS FLOW

The following paragraphs describe the process of capturing and distributing engineering information through the electronic and Graphic COM systems. A flow chart illustrates the electronic input process.

3.1 ELECTRONIC INPUT PROCESS

The following steps detail the process for entering CAD-generated files into both the electronic and Graphic COM systems. The discussion is keyed to Figure 1, which illustrates the electronic and Graphic COM process flow. Steps 1 through 6 describe the preprocessing operations and apply to both the electronic and Graphic COM systems. Steps 7 through 10 describe data capture and distribution through the electronic system. Steps 11 through 13 describe the Graphic COM process.

Note that this process flow applies to both initial releases and revised drawing releases of design documentation.

3.1.1 Preprocessing–Electronic and Graphic COM

Refer to Figure 1. Steps 1 through 6 apply to both the electronic process and Graphic COM process.

1. The Design Site copies CAD-generated files to the IIS system. Graphic COM and the electronic system accept **only** drawing files with ASCII text and PLO file types. Backup save sets are accepted if the set contains only ASCII text and PLO file types. Graphic COM and the electronic system **do not accept** ANSI text or Multiplot file types. Additional file naming and file format requirements are listed below.

   - Backup save sets must be named with a .BCK extension.
   - ASCII text files must be named with a .LIS or .LST extension.
   - PLO files from CAD systems must be in binary format and named with a .PLO extension.

   Refer to *DEC STD 185-0 Documentation of Computer Media in the Engineering Documentation System* for additional file naming conventions.

   For additional copy procedures, contact Edwin Waters, HUO, DTN: 225-4304, STUDIO::WATERS.

2. The Design Site then sends mail to IIS via COM Electronic Release Form (CERF). The message includes the following information for each of the copied files.

   - Document number
   - Revision
   - File name
   - Distribution type (Limited, Confidential, Restricted, or Full)

- Distribution list if distribution type is Limited
- Charge number

3. Save sets are broken down and files enter the Graphic COM/electronic process via the IIS Quality Check Queue.
4. IIS performs a quality check on the files in queue by viewing the images and ensuring the document number and revision level match the mail message. For multipage documents, IIS ensures that all pages were received and are ready for processing.
5. IIS issues an OK TO PROCESS command for complete files with matching document information.
6. Incomplete files or files with nonmatching document names and distribution type remain in the queue until reconciled with the client. After reconciliation, the Design Site resends the file to the IIS system where the preprocessing operations are again performed.

This completes the preprocessing operations. The following paragraphs describe the electronic and Graphic COM processes. Subhead 3.1.2 describes electronic processing, which includes steps 1 through 6, described previously in subhead 3.1.1 and steps 7 through 10 in subhead 3.1.2. Subhead 3.1.3 describes Graphic COM processing, which includes steps 1 through 6 from subhead 3.1.1 and steps 11 through 13 in subhead 3.1.3.

3.1.2 Electronic Processing

Digital Confidential, Digital Restricted, Full Distribution, and Limited Distribution documents are processed electronically. Refer to subhead 3.3 for distribution procedures pertaining to the different distribution types.

Steps 1 through 6 in subhead 3.1.1 and the following steps 7 through 10 apply to the electronic process. Usually, electronic images are available for distribution within 48 hours after the files are received by IIS.

7. A File Translator converts files to Digital Document Interchange Format (DDIF) and submits the DDIF files to the electronic process.
8. Once daily, the document name of each DDIF file is compared to the document names contained in the DOCS data base.
9. If there is no match, the file remains in the Pending area until the daily comparison produces a match.
10. If the DDIF document name matches DOCS, the DDIF file moves into the IIS image data base.

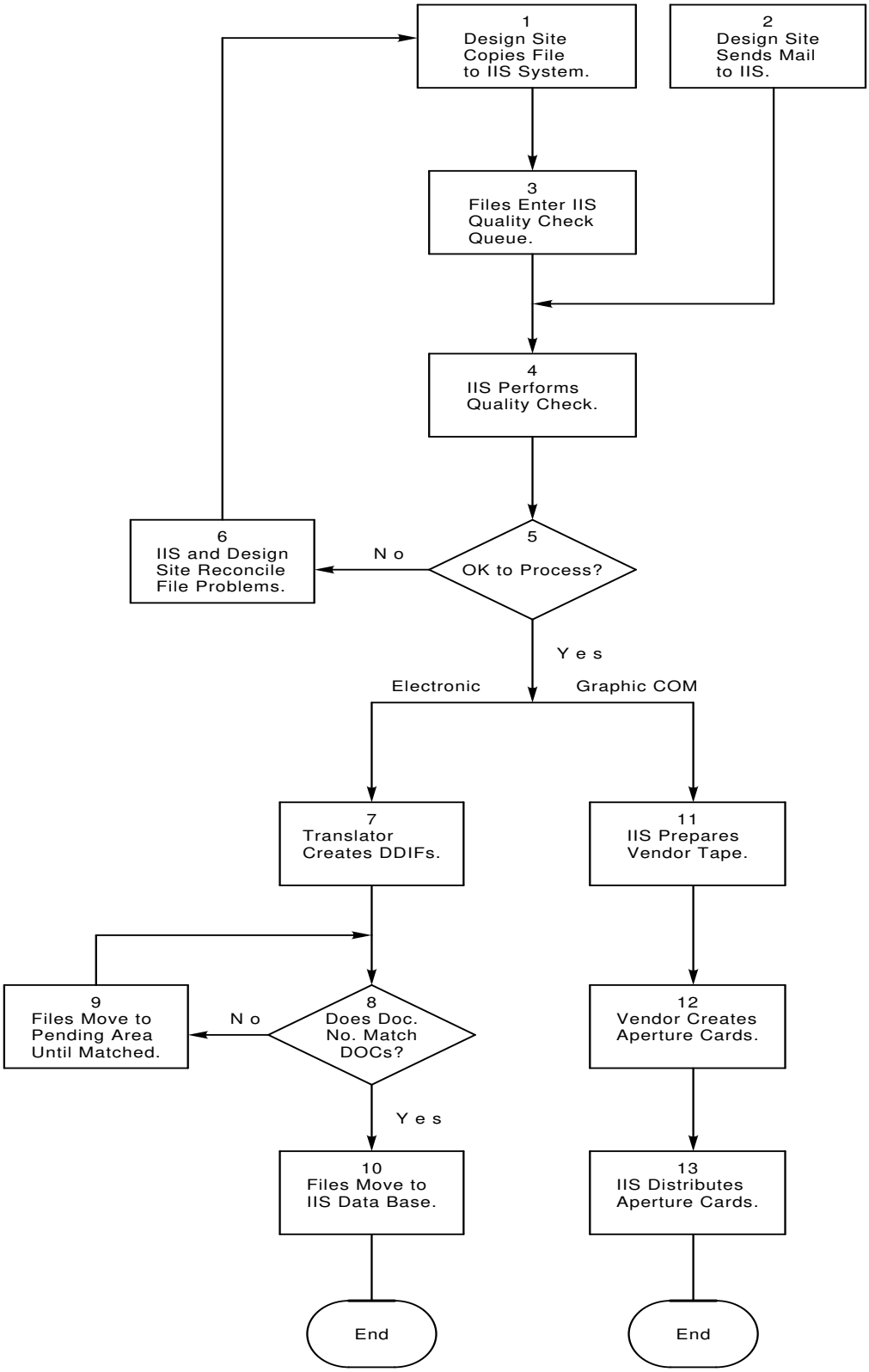
3.1.3 Graphic COM Processing

Steps 1 through 6 in subhead 3.1.1 and the following steps 11 through 13 apply to the Graphic COM process. The Graphic COM products, aperture cards, are usually available within 7 to 10 working days after the files are received by IIS.

11. IIS prepares a tape containing the files that meet quality check criteria in a format suitable for microfilming.

12. The microfilm vendor processes the tape and prepares an aperture card for each file. Refer to *DEC STD 162-0 Micrographics: Format and Quality Requirements for Microfilm*.
13. IIS distributes aperture cards according to distribution type. Refer to subhead 3.3.2 for additional information.

Figure 1: Electronic/Graphic COM Process Flow



3.2 SCANNED IMAGE PROCESS

The electronic process also accepts paper images that have been filmed, scanned, and converted to electronic files. **This is not the preferred input process**. Eventually, the scanned image process will be phased out and replaced by the electronic input process described in subhead 3.1.

The following steps detail the scanned image input process.

1. The Design Site submits paper document to IIS.
2. IIS microfilms the paper document and scans the resulting aperture card.
3. From the scanned image, a file translator generates DDIF files that are compliant with Compound Document Architecture file formats.
4. IIS then submits the files to the electronic process where the flow is identical to that described in steps 8 through 10, subhead 3.1.2 and Figure 1.

3.3 DISTRIBUTION

IIS ensures that documents are handled according to their distribution type. The following paragraphs describe distribution of electronic and microfilmed documents.

3.3.1 Electronic Images

Only documents with the Full Distribution type are made available electronically. Full Distribution documents are those that have been designated by the originator as available to all ERICA users throughout Digital. Clients at local data base sites use the ERICA Retrieval Module to locate and capture image files not residing in their local data base. The ERICA software locates document image files through the DOCS data base, which tracks initial and revised drawing releases. Once located, ERICA retrieves the files and stores them in the local data base.

3.3.2 Microfilm

Restricted, Confidential, and Limited Distribution documents are distributed on microfilm. Full Distribution documents can also be distributed on microfilm when required, such as for non-ERICA users. IIS mounts the film on 35 mm aperture cards and distributes the cards in accordance with the following.

- IIS distributes Limited Distribution images according to the list on the accompanying COM Electronic Release Form (CERF) message.
- IIS distributes Full Distribution images to all design service libraries.
- IIS distributes Confidential and Restricted images according to the originator's direction.

Refer to *DEC STD 033-0 Microfilm Aperture Cards - Creation and Distribution Process*.

3.4 UNIT CHARGE

There is a standard subscription fee for which ERICA users are billed quarterly. Fees for special services are billed separately.

Graphic COM services are billed when the IIS group completes work. A billing statement shows the number of frames processed, the job numbers, and accounting details such as the work order number, revised drawing number, or charge number. The Unit Charge System then charges the engineering project directly.

Refer billing questions to Edwin Waters, HUO, DTN: 225-4304, STUDIO::WATERS.

4 ENGINEERING CHANGE ORDERS

The processes and procedures described in this standard apply to both initial and revised drawing releases.

Refer to *DEC STD 100-1, Engineering Change Orders - Hardware* for specific procedures applicable to revised drawing releases.

APPENDIX A REFERENCED DOCUMENTS

A.1 EL-Class Digital Documents

EL-Class Number	Document Title
EL-00033-00	*DEC STD 033-0 Microfilm Aperture Cards - Creation and Distribution Process*
EL-00100-01	*DEC STD 100-1 Engineering Change Orders - Hardware*
EL-00162-00	*DEC STD 162-0 Micrographics: Format and Quality Requirements for Microfilm*
EL-00185-00	*DEC STD 185-0 Documentation of Computer Media in the Engineering Documentation System*

Use VTX SMC to order copies of EL-class documents from Standards and Methods Control. Send distribution questions to JOKUR::SMC or call DTN: 234-4423.

A.2 Other Digital Documents

Document Number	Document Title
	ERICA Read Me First
	ERICA Student Guide

A.3 ORDERING INFORMATION

ERICA Read Me First and *ERICA Student Guide* can be ordered by providing your full name, badge number, cost center, and mail stop to the ERICA Support Group, HUO, STUDIO::HOTLINE.

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+-------------------------------------------------------------------+
|                        READER COMMENTS                            |
|                                                                   |
| Your  comments  and suggestions  will help  Standards and Methods |
| Control improve their services and documents.                     |
+-------------------------------------------------------------------+
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INTEROFFICE MEMORANDUM

TO: Holders of Digital Standards 128-0 and 093-0

DATE: 21-Jun-1991
FROM: Laura Barnes @BXC
DEPT: US Export Compliance
EXT: 229-7581

SUBJECT: Export Regulations

Digital Standards 128-0 and 093-0 are in the process of being updated to reflect steps which are required to ensure compliance with the U.S. Government export laws. These laws apply to all (U.S. and non-U.S.) product managers and engineers regardless of the intended destination of the product.

The U.S. export laws which Digital must adhere to were issued by the Department of Commerce (for commercial products) via the U.S. Export Regulations and by the Department of State (for products built to mil specs or for military applications) via the International Traffic in Arms Regulations (ITAR).

— RESPONSIBLE ENGINEERS (OR RESPONSIBLE PERSONS) must obtain the correct export classifications for their product design information and other engineering intellectual property from Corporate Export.

— ORIGINATORS must provide details of technical capabilities to Corporate Export for export classification. Originators must further ensure that any product classified by Corporate Export as "ITAR controlled" is flagged as such on all documents and transmissions. In addition, originators must endure that all technical information is distributed on a limited basis, as determined by Area Export, in compliance with ITAR.

NOTE

Submissions to ERICA of ITAR controlled product must be made under one of the following ERICA Limited Distribution codes: 9, 10, or 11.

— DESIGN LIBRARIES AND DOCUMENT CONTROL are responsible for ensuring that ITAR flagged documents are distributed only after screening the requester and the intended end use against a specific set of criteria. Contact your Area Export Group for screening criteria.

— MICROFILM REFERENCE LIBRARIES are responsible for storing an ITAR Unique message/image on an aperture card and screening requesters with the support and approval of Area Export prior to releasing.

— ENGINEERING SERVICES is responsible for affixing the ITAR flag on all generated documents.

Any questions related to this requirement should be directed to:

U.S. EXPORT OPERATIONS (FOR U.S. POLICIES/PROCEDURES AND SCREENING CRITERIA)
Tom McCabe @BXC DTN: 282-1231 NODE: ISLNDS::MCCABE
Ted Lowney @BXC DTN: 282-1148 NODE: ISLNDS::LOWNEY

EUROPEAN EXPORT TECHNICAL REVIEW
Dave Jennings @GEO DTN: 821-4357

CORPORATE EXPORT (FOR PRODUCT EXPORT CLASSIFICATION ONLY)
Don Ames @WNP DTN: 427-5614 NODE: WNPV01::AMES
Mark Roch @WNP DTN: 427-5007 NODE: WNPV01::ROCH

ALL CLASSIFICATION REQUESTS ARE TO BE DIRECTED TO DON AMES.
ALL ITAR-SPECIFIC CLASSIFICATIONS ARE TO BE DIRECTED TO MARK ROCH.

REFERENCED DOCUMENTS:

EL-00128-00 DEC STD 128-0 Security Classifications for Engineering Intellectual Property - Policy and Regulations

EL-00093-00 DEC STD 093-0 Capturing, Storing, and Distributing Engineering Documentation with Electronic and Graphic COM Systems (includes ERICA - Electronic Retrieval of Image and Computer aided design Architecture)